

Abstract:

Proposal Title: Analysis of Impacts of Climate Variability on Malaria Transmission in Sri Lanka and the Development of an Early Warning System

Institutions:

- International Water Management Institute, Sri Lanka (IWMI)
- International Research Institute for Climate Prediction, USA (IRI)
- Anti-Malaria Campaign, Ministry of Health, Sri Lanka (AMC)
- Columbia University, USA (CU)
- University of Sri Jayawardenapura, Sri Lanka (USJ)

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Malaria is the major public health problem in Sri Lanka and many other developing countries. It is well established that the disease has climatic determinants and more recently climate variability has been shown to be important in explaining its occurrence. However, at present, there are no practical tools to predict the occurrence of malaria based on climate forecasts in Asia. Such tools would be extremely useful in making efficient use of the limited resources that are typically available in developing countries for malaria control.

In this proposal, personnel attached to the International Water Management Institute, Anti-Malaria Campaign, University of Sri Jayawardenapura and the International Research Institute for Climate Prediction including Columbia University partners have formulated a program to incorporate climate variability and forecast information into malaria risk maps for the malaria-endemic Uva Province in Sri Lanka. The availability of long dense and reliable records of climate, hydrological, entomological, malaria incidence and malaria control activity data, as well as cross sectional data on socio-economic status for the Iva Province, provides a unique opportunity to study the interactions. Based on these rich data, models will be developed to forecast malaria risk using climate forecasts, remote sensing and spatial analytic techniques. Results from the small area study will be used in the development of a prototype early warning system for the entire island.

The active involvement of the malaria control agency of Sri Lanka makes it possible to access entomological and epidemiological data and directly implement the tools that will be developed. The effectiveness of these risk-maps in communicating climate induced malaria risks and economic costs and benefits of malaria incidence and control and the use of new techniques will be identified. The ultimate objective is to develop a practical methodology with a view to disseminating it in Sri Lanka and to other regions of low to moderate endemicity in South and Southeast Asia with similar transmission conditions.